

WHAT IS CLAIMED IS:

1. A beverage bottling plant for filling bottles with a liquid beverage filling material, said beverage bottling plant comprising:
 - a filling machine being configured to fill empty bottles with liquid beverage filling material;
 - a conveyer arrangement being configured and disposed to move empty bottles to said filling machine;
 - said beverage filling machine comprising a plurality of beverage filling positions, each beverage filling position comprising a beverage filling device for filling bottles with liquid beverage filling material;
 - said filling devices comprising apparatus being configured to introduce a predetermined volume of liquid beverage filling material into the interior of bottles to a substantially predetermined level of liquid beverage filling material;
 - said apparatus being configured to introduce a predetermined volume of liquid beverage filling material comprising apparatus being configured to terminate the filling of beverage bottles upon liquid beverage filling material reaching said substantially predetermined level in bottles;
 - a closing station being configured and disposed to close filled bottles;
 - a conveyer arrangement being configured and disposed to transfer filled bottles from said filling machine to said closing station;
 - a labeling station being configured and disposed to receive bottles to be labeled;
 - a conveyer arrangement being configured and disposed to

convey bottles to said labeling station;

said labeling station comprising:

a storage being configured and disposed to store a continuous collapsed tube of flat uncut sleeve labels disposed sequentially one after the other;

a mandrel structure;

said mandrel structure being configured to open a continuous collapsed tube of uncut sleeve labels;

said mandrel structure having a receiving end and a discharge end remote from said receiving end;

a first set of roller apparatus being configured and disposed to advance an opened continuous tube of uncut sleeve labels along said mandrel structure from said receiving end towards said discharge end;

said first set of roller apparatus being disposed adjacent said receiving end of said mandrel structure;

a second set of roller apparatus being configured and disposed to advance an opened continuous tube of uncut sleeve labels along said mandrel structure to said discharge end;

said second set of roller apparatus being disposed between said first set of roller apparatus and said discharge end of said mandrel structure;

apparatus being configured and disposed to cut an open sleeve label from an opened continuous tube of uncut open sleeve labels to thus produce a cut open sleeve label for a bottle disposed at said discharge end of said mandrel structure;

said cutting apparatus comprising a rotating disc having at least one sleeve cutting knife operatively connected thereto;

 each said at least one sleeve cutting knife being configured and disposed to be moved between a position of rest and a position of cutting;

 each said at least one sleeve cutting knife comprises a portion configured to move said at least one sleeve cutting knife into the cutting position, and also comprises a structure to move said at least one sleeve cutting knife into the rest position;

 said cutting apparatus also comprising at least one electromagnet configured and disposed to move said at least one sleeve cutting knife into the cutting position;

 said cutting apparatus being disposed between said first set of roller apparatus and said second set of roller apparatus;

 said mandrel structure comprising an expander apparatus being configured and disposed to sufficiently expand a portion of an uncut open sleeve label, immediately adjacent said cutting apparatus, between said first set of roller apparatus and said second set of roller apparatus, to make taut a portion of an opened tube of uncut open sleeve labels adjacent said cutting apparatus and thus to minimize bunching of an opened continuous tube of uncut open sleeve labels on said mandrel structure, and also to maximize precision of the cut being effectuated by said cutting apparatus;

 said second set of roller apparatus also being configured and disposed to remove a cut open sleeve label from said

mandrel structure with sufficient velocity and to position a cut open sleeve label about a bottle disposed at said discharge end of said mandrel structure, and thus to permit a constant cut of a sleeve label being cut and elevated cutting speeds to afford shorter cycle times;

and

a gripper arrangement being configured and disposed to grip an open sleeve label cut by said cutting apparatus and to dispose a cut open sleeve label about a bottle to be labeled;

said gripper arrangement comprising:

 a base structure;

 a first gripper jaw and a second gripper jaw;

 each gripper jaw having a first portion being configured to be disposed to hold a cut open sleeve in its open condition;

 each gripper jaw having a second portion being configured to be connectable to said base structure;

 each second gripper jaw portion having a slot-type passage;

 a first support structure being configured and disposed to connect said first gripper jaw to said base structure;

 a second support structure being configured and disposed to connect said second gripper jaw to said base structure;

 each support structure comprising a locating bolt;

 each locating bolt being configured and disposed to connect its corresponding support structure connected for rotation at said base structure to permit movement of said

gripper jaws into a position wherein a cut open sleeve label is gripped by said gripper jaws and also into a position wherein a cut open sleeve label is released from the gripped condition;

each support structure comprising a guide pin;

said guide pin being configured connect a second gripper jaw portion to its corresponding support structure;

an arrangement being configured and disposed to actuate said guide pins to move said gripper jaws into a position wherein a cut open sleeve label is gripped by said gripper jaws and also into a position wherein a cut open sleeve label is released from the gripped condition;

each support structure comprising a passage having a diameter;

each slot-type passage being configured to be disposed to be aligned with said passage of its corresponding support structure;

each support structure comprising a stud;

said stud being configured to be fixedly disposed in said support structure passage and to extend through said gripper jaw slot-type passage of said second gripper jaw portion;

each second gripper jaw portion comprising an adjustment arrangement;

each adjustment arrangement at least comprising:

a stud screw being configured and disposed to be in contact with said fixed stud and to move said second gripper jaw portion and its corresponding gripper jaw

between a first position and a second position, said second gripper jaw position being a position configured to minimize misalignment of a cut open sleeve gripped by said gripper jaws; and

a spring configured and disposed to exert a bias on said stud screw and said second gripper jaw portion; each support structure further comprising a connector;

said connector being configured and disposed to secure said second gripper jaw portion to its corresponding support structure upon movement of said second gripper jaw portion into said second gripper jaw position; and

said bottling plant further comprising:

apparatus being configured and disposed to affix a cut open sleeve label, positioned by said gripper arrangement about a bottle, to the surface of a bottle to be labeled.

2. A method of operating a container filling plant labeling station having a sleeve label gripper arrangement, configured to add a label to a container, said station comprising:

an arrangement being configured and disposed to open a continuous collapsed tube of uncut sleeve labels;

apparatus being configured and disposed to advance a tube of sleeve labels;

apparatus being configured and disposed to cut a sleeve label;

a gripper arrangement being configured and disposed to grip an open sleeve label and to position and to release an open sleeve label

about a container to be labeled;

said gripper arrangement comprising:

a first gripper jaw and a second gripper jaw;

a support arrangement for said gripper jaws;

an arrangement being configured and disposed to position and to secure said gripper jaws in a position configured to minimize misalignment of a sleeve label on a labeled container; and

said station comprising:

apparatus being configured and disposed to affix an open sleeve label, positioned by said gripper arrangement about a bottle, to the surface of a bottle to be labeled;

said method comprising the steps of:

opening a continuous collapsed tube of uncut sleeve labels;

advancing a continuous tube of labels;

cutting a sleeve label;

gripping an open sleeve label with said gripping jaws of said gripping arrangement;

positioning a gripped sleeve label about a container to be labeled;

releasing a gripped label from said gripper jaws;

adjusting the position of said gripper jaws to minimize misalignment of a sleeve label on a labeled container;

securing said adjusted position of said gripper jaws; and

affixing a sleeve label, positioned by said gripper jaws about a container, to the surface of a container to be labeled.

3. A container filling plant container labeling station having a sleeve label gripper arrangement, configured to add a label to a container, said station comprising:

an arrangement being configured and disposed to open a continuous collapsed tube of uncut sleeve labels;

apparatus being configured and disposed to advance a tube of sleeve labels;

apparatus being configured and disposed to cut a sleeve label;

a gripper arrangement being configured and disposed to grip an open sleeve label and to position and to release an open sleeve label about a container to be labeled;

said gripper arrangement comprising:

a first gripper jaw and a second gripper jaw;

a support arrangement for said gripper jaws;

an arrangement being configured and disposed to position and to secure said gripper jaws in a position configured to minimize misalignment of a sleeve label on a labeled container; and

said station comprising:

apparatus being configured and disposed to affix a sleeve label, positioned by said gripper arrangement about a bottle, to the surface of a bottle to be labeled.

4. A gripper arrangement for handling tube sleeves that are used in shrink-sleeve labeling stations or stretch-sleeve labeling stations according, characterized in that means are present that can

adjust the position of the gripper jaw expansion.

5. The arrangement according to claim 4, characterized in that the adjustment of the position of the gripper jaw expansion can be carried out without change of the magnitude of the gripper jaw expansion.

6. The arrangement according to claim 5, characterized in that the means comprise a combination comprising a screw, for example, a stud screw and an abutment element, for example, a stud.

7. The arrangement according to claim 6, characterized in that the means comprise a combination comprising a pinion gear and a pinion rod.

8. The arrangement according to claim 7, characterized in that the means comprise a combination comprising planar spacer elements, such as, for example, sheet metal and an abutment.

9. The arrangement according to claim 8, characterized in that the means comprise a combination comprising spacer rings, a receiver structure for such spacer rings, and an abutment.